

## Philip M. Johnson

Information and Computer Sciences  
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### Degrees

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Ph.D. in Computer Science, University of Massachusetts, Amherst. 1990

M.S. in Computer Science, University of Massachusetts, Amherst. 1985

B.S. in Computer Science, University of Michigan, Ann Arbor. 1980

B.S. in Biology, University of Michigan, Ann Arbor. 1980

### Research and Teaching Experience

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<i>Professor</i>	2001—present
<i>Associate Professor</i>	1995—2001
<i>Assistant Professor</i>	1990—1995

Department of Information and Computer Sciences, University of Hawaii.

- Director, Collaborative Software Development Laboratory
- Graduate Chair, Information and Computer Sciences, 1998-2001

<i>Visiting Professor</i>	2006
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School of Engineering, Blekinge Institute of Technology, Sweden.

- Research on software measurement.

<i>Senior Research Fellow</i>	1997
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Distributed Systems Technology Centre, University of Queensland, Brisbane, Australia.

- Research on computer-supported cooperative work technologies

<i>Research Assistant</i>	1984—1986, 1987—1990
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Department of Computer Science, University of Massachusetts.

- Ph.D. thesis on structural evolution in software development
- Research on automated Ada package restructuring
- Research on natural language processing tools.

<i>Teaching Assistant</i>	1983—1984
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Department of Computer Science, University of Massachusetts.

- Coursework support in software engineering.

<i>Lecturer</i>	1981—1982
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Department of Computer and Communication Sciences, University of Michigan.

- Taught introductory programming course.

## Industry Experience

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*Member, Technical Advisory Board* 2006-present  
Sixth Sense Analytics, Raleigh, North Carolina.

- Sixth Sense Analytics provides software measurement and analysis services.

*Member, Board of Directors* 1999-2007  
Hawaii Strategic Development Corporation, Honolulu, Hawaii.

- HSDC is a State-sponsored organization that works to support the growth of the venture capital industry in Hawaii.

*Member, Board of Directors* 2003-2005  
Tiki Technologies, Inc., Honolulu, Hawaii.

- Tiki Technologies develops internet software including spam detection systems.

*Member, Board of Directors* 2002-2005  
Lavanet, Inc., Honolulu, Hawaii.

- Lavanet is an Internet Service Provider, Network Engineering, and Web Development Services company.

*Member, Professional Advisory Board* 2000-present  
BreastCancer.org, Philadelphia, PA.

- BreastCancer.org is a non-profit organization dedicated to helping those living with breast cancer.

*Member, Board of Directors* 2000-2004  
High Technology Development Corporation, Honolulu, Hawaii.

- HTDC is a State-sponsored organization whose mission is to support the growth of the high technology industry in Hawaii.

*Co-Founder* 2000  
hotU, Inc., Honolulu, Hawaii.

- Served as interim Chief Technology Officer during initial formation of company to provide Internet-based services to college student market. Currently serve on Technology Advisory Board.

*Consulting Software Engineer* 1994—present  
Honolulu, Hawaii.

- Providing project management and software engineering services to local and national companies.

*Member, Professional Advisory Board* 2000-2002  
Referentia, Inc., Honolulu, HI.

- Referentia develops E-learning multimedia packages.

*Programmer* 1986—1987  
Department of Computer Science, University of Massachusetts.

- Developed control shell for GBB, an AI knowledge base and inference environment.

*Systems Programmer* 1982—1983

Software Services Corporation, Ann Arbor, MI.

- Developed software quality assurance and validation tools for Ford Motor Company.

*Systems Analyst*

1981—1983

Veterans Hospital, Ann Arbor, MI.

- Developed real-time data acquisition and signal processing software to control hardware for psychophysiological experimentation.

*Programmer*

1978

Great Lakes Software Systems, Ann Arbor, MI.

- Implemented accounting software in COBOL.

## Journal Publications

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V. Basili and M. Zelkowitz and D. Sjöberg and P. Johnson and T. Cowling, *Protocols in the use of Empirical Software Engineering Artifacts*, Empirical Software Engineering, Volume 12, February, 2007.

P. Johnson, *Automated software process and product measurement with Hackystat*, Dr. Dobbs Journal, January, 2007.

L. Hochstein and T. Nakamura and V. Basili and S. Asgari and M. Zelkowitz and J. Hollingsworth and F. Shull and J. Carver and M. Voelp and N. Zazworka and P. Johnson, *Experiments to understand HPC time to development*, CTWatch Quarterly, November, 2006.

P. M. Johnson and H. Kou and M. Paulding and Q. Zhang and A. Kagawa and T. Yamashita, *Improving software development management through software project telemetry*, IEEE Software, Vol. 22, No. 4, July 2005.

S. Faulk and J. Gustafson and P. Johnson and A. Porter and W. Tichy and L. Votta, *Measuring HPC Productivity*, International Journal of High Performance Computing Applications, December 2004.

P. M. Johnson and M. L. Moffett and B. T. Pentland, *Lessons learned from VCommerce: A virtual environment for interdisciplinary learning about software entrepreneurship*. Communications of the ACM, Vol. 46, No. 12, December, 2003.

P. M. Johnson and C. A. Moore and J. A. Dane and R. S. Brewer, *Empirically Guided Software Effort Guesstimation*. IEEE Software, Vol. 17, No. 6, December 2000.

P. M. Johnson and A. M. Disney, *A Critical Analysis of PSP Data Quality: Results from a Case Study*. Journal of Empirical Software Engineering, Volume 4, December, 1999.

P. M. Johnson and A. M. Disney, *The Personal Software Process: A Cautionary Case Study*. In IEEE Software, Volume 15, No. 6, November, 1998.

P. M. Johnson, *Reengineering Inspection*. In Communications of the ACM, Volume 41, No. 2, February, 1998.

P. M. Johnson and D. Tjahjono, *Does Every Inspection Really Need A Meeting?*, In Journal of Empirical Software Engineering, Volume 4, No. 1, January 1998.

- A. A. Porter and P. M. Johnson, *Assessing Software Review Meetings: Results of a Comparative Analysis of Two Experimental Studies*. In IEEE Transactions on Software Engineering, vol. 23, no. 3, March 1997.
- P. M. Johnson, *Design for Instrumentation: High Quality Measurement of Formal Technical Review*. Software Quality Journal, Volume 5, March, 1996.
- D. Wan and P. M. Johnson, *Experiences with CLARE: a Computer-Supported Collaborative Learning Environment*. In the International Journal of Human-Computer Studies, Volume 41, December, 1994.
- P. M. Johnson, *Experiences with EGRET: An Exploratory Group Work Environment*. In Collaborative Computing 1(1), March, 1994.
- B. Walker, M. Walker, S. Achem, P. Johnson, and R. Gregg. *The Clinical Significance of Electro-gastrography*. In Psychophysiology 20: 1983.

### **Book Chapters**

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- P. M. Johnson, *An Instrumented Approach to Improving Software Quality through Formal Technical Review*. In Software Inspection: An Industry Best Practice. David A. Wheeler, Bill Brykczynski, and Reginald N. Meeson, Jr., Editors. IEEE Computer Society Press. 1996
- Also appearing in the Proceedings of the 16th International Conference on Software Engineering, Sorrento, Italy. 1994.
- P. M. Johnson and W. G. Lehnert, *Beyond Exploratory Programming: A Methodology and Environment for Natural Language Processing*. In Artificial Intelligence and Software Engineering, D. Partridge, editor. Ablex, 1990.
- Also appearing in Proceedings of the Fifth National Conference on Artificial Intelligence (AAAI-86), Philadelphia, PA.
- D. Corkill, K. Gallagher, and P. M. Johnson, *Achieving Flexibility, Efficiency, and Generality in Blackboard Architectures*. In Readings in Distributed Artificial Intelligence, A. Bond and L. Gasser, editors. Morgan-Kaufman, 1988.
- Also appearing in Proceedings of the Sixth National Conference on Artificial Intelligence (AAAI-87), Seattle, WA.

### **Conference Publications**

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- P. Johnson, *Requirement and Design Trade-offs in Hackystat: An in-process software engineering measurement and analysis system*, Proceedings of the 2007 International Symposium on Empirical Software Engineering and Measurement, Madrid, Spain, September, 2007.
- P. Johnson and H. Kou, *Automated Recognition of Test-Driven Development with Zorro*, Proceedings of Agile 2007, Washington, D.C., August, 2007.
- H. Scott and P. Johnson, *Generalizing fault contents from a few classes*, Proceedings of the 2007 International Symposium on Empirical Software Engineering and Measurement, Madrid, Spain, September, 2007.

- P. M. Johnson, H. Kou, J. Agustin, Q. Zhang, A. Kagawa, T. Yamashita, *Practical automated process and product metric collection and analysis in a classroom setting: Lessons learned from Hackystat-UH*, In Proceedings of the 2004 Symposium on Empirical Software Engineering, Los Angeles, CA., August 2004.
- P. M. Johnson, H. Kou, J. Agustin, C. Chan, C. Moore, J. Miglani, S. Zhen, and W. Doane, *Beyond the Personal Software Process: Metrics collection and analysis for the differently disciplined*, In Proceedings of the 2003 International Conference on Software Engineering, Portland, OR., May, 2003.
- P. M. Johnson, *Leap: A "Personal Information Environment" for Software Engineers*. In Proceedings of the 1999 International Conference on Software Engineering, Los Angeles, CA., May 1999.
- A. M. Disney, P. M. Johnson, *Investigating Data Quality Problems in the PSP*. In Proceedings of the Sixth International Symposium on the Foundations of Software Engineering, Orlando, FL., November, 1998.
- P. M. Johnson, D. Tjahjono, *Assessing software review meetings: A controlled experimental study using CSRS*. In Proceedings of the 1997 International Conference on Software Engineering, Boston, MA., May 1997.
- D. Wan and P. M. Johnson, *Computer Supported Collaborative Learning using CLARE: the Approach and Experimental Findings*. In Proceedings of the 1994 ACM Conference on Computer Supported Cooperative Work, Chapel Hill, NC. 1994.
- P. M. Johnson, *Supporting Technology Transfer of Formal Technical Review through a Computer Supported Collaborative Review System*. In Proceedings of the Fourth International Conference on Software Quality, Reston, VA. 1994
- P. M. Johnson, *An Instrumented Approach to Improving Software Quality through Formal Technical Review*. In Proceedings of the 16th International Conference on Software Engineering, Sorrento, Italy. 1994.
- P. M. Johnson, D. Tjahjono, D. Wan, R. Brewer, *Experiences with CSRS: An Instrumented Software Review Environment*. In Proceedings of the 11th Annual Pacific Northwest Software Quality Conference, Portland, OR. 1993.
- P. M. Johnson, D. Tjahjono, *Improving Software Quality through Computer Supported Collaborative Review*. In Proceedings of the Third European Conference on Computer Supported Cooperative Work, Milan, Italy. 1993.
- P. M. Johnson, *Supporting Exploratory CSCW with the EGRET Framework*. In Proceedings of the ACM 1992 Conference on Computer Supported Cooperative Work, Toronto, Canada. 1992.
- P. M. Johnson, D. Hildum, A. Kaplan, C. Kay, and J. Wileden, *An Ada Restructuring Assistant*. In Proceedings of the Fourth Annual Conference on Artificial Intelligence and Ada, Fairfax, VA. 1988.
- D. Corkill, K. Gallagher, and P. M. Johnson, *Achieving Flexibility, Efficiency, and Generality in Blackboard Architectures*. In Proceedings of the Sixth National Conference on Artificial Intelligence (AAAI-87), Seattle, WA.

P. M. Johnson and W. G. Lehnert, *Beyond Exploratory Programming: A Methodology and Environment for Natural Language Processing*. In Proceedings of the Fifth National Conference on Artificial Intelligence (AAAI-86), Philadelphia, PA.

## Workshop Publications

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- P. Johnson, *Ultra-automation and ultra-autonomy for software engineering management of ultra-large-scale systems*, Proceedings of the 2007 Workshop on Ultra Large Scale Systems, Minneapolis, Minnesota, May, 2007.
- H. Kou, P. M. Johnson, *Automated recognition of low-level process: A pilot validation study of Zorro for test-driven development*, Proceedings of the 2006 International Workshop on Software Process, Shanghai, China, May 2006.
- P. M. Johnson, M. G. Paulding, *Understanding HPC Development through Automated Process and Product Measurement with Hackystat*, Proceedings of the Second Workshop on Productivity and Performance in High-End Computing (P-PHEC), February, 2005.
- P. M. Johnson, *You can't even ask them to push a button: Toward ubiquitous, developer-centric, empirical software engineering*, Proceedings of the Workshop on New Visions for Software Design and Productivity: Research and Applications, December, 2001.
- P. M. Johnson, *Project LEAP, Lightweight, Empirical, Anti-measurement dysfunction, and Portable Software Developer Improvement*, Software Engineering Notes, Volume 24, Number 6, December 1999.
- P. M. Johnson, *Egret: A Framework for Advanced CSCW Applications*, Software Engineering Notes, Volume 21, Number 5, September 1996.
- P. M. Johnson, *Assessing software review meetings: An empirical study using CSRS*, Appearing in the 1996 International Software Engineering Research Network Meeting (ISERN'96), Sydney, Australia, August, 1996.
- P. M. Johnson and Carleton Moore, *Investigating Strong Collaboration with the Annotated Egret Navigator*, Appearing in the Fourth IEEE Workshop on Enabling Technologies: Infrastructure for Collaborative Enterprises (WET ICE 95), April, 1995.
- P. M. Johnson, *Computer Supported Formal Technical Review with CSRS*, Software Inspection and Review Organization Newsletter, Volume 5, Number 3, December, 1994.
- P. M. Johnson, *Collaboration-in-the-large vs. Collaboration-in-the-small*. Appearing in Proceedings of the 1994 CSCW Workshop on Software Architectures for Cooperative Systems, Chapel Hill, VA. October, 1994.
- P. M. Johnson, *From Principle-centered to Organization-centered Design: A Case Study of Evolution in a Computer-Supported Formal Technical Review Environment*. Appearing in the Proceedings of the 15th Interdisciplinary Workshop on Informatics and Psychology, Scharding, Austria, 1994.
- P. M. Johnson, *Report from the 1993 ECSCW Workshop on Tools and Technologies*. SIGOIS Bulletin, April, 1994.

- P. M. Johnson, *Methodological Issues in CSCW Research*. Position paper for the 1993 European Conference on Computer Supported Cooperative Work, Workshop on Tools and Technologies, Milan, Italy. 1993.
- P. M. Johnson, *An Architectural Perspective on EGRET*. In Proceedings of the ACM 1992 Conference on Computer Supported Cooperative Work, Workshop on Tools and Technologies, Toronto, Canada. 1992.
- P. M. Johnson, *Collaborative Software Review for Capturing Design Rationale*. In Proceedings of the 1992 AAAI Workshop on AI and Design Rationale, San Jose, CA. 1992.
- D. Wan and P. M. Johnson, *Supporting Scientific Learning and Research Review using COREVIEW*. In Proceedings of the 1992 AAAI Workshop on Communicating Scientific and Technical Knowledge, San Jose, CA. 1992.
- P. M. Johnson, *EGRET: Exploring Open, Evolutionary, and Emergent Collaborative Systems*. In Proceedings of the 1991 European Conference on Computer Supported Cooperative Work, Tools and Technologies Workshop, Amsterdam, The Netherlands. 1991.
- P. M. Johnson, *Structural Evolution in Exploratory Software Development*. In Proceedings of the 1989 AAAI Spring Symposium on AI and Software Engineering, Stanford University, CA. 1989.
- S. Founds and P. M. Johnson, *A Knowledge-based Rhythm Composition Tool*. In Proceedings of the 1989 IJCAI Workshop on Artificial Intelligence and Music, Detroit, MI. 1989.
- P. M. Johnson, *Integrating BBI-style Control into the Generic Blackboard System*. In Proceedings of the 1987 AAAI Workshop on Blackboard Systems, Seattle, WA. 1987.
- P. M. Johnson, *Combining Software Engineering and Artificial Intelligence*. In Proceedings of the First International Workshop on Computer-Aided Software Engineering, Cambridge, MA. 1987.
- D. Corkill, K. Gallagher, and P. M. Johnson, *From Prototype to Product: Evolutionary Development from within the Blackboard Paradigm*. In Proceedings of the Workshop on High-level Tools for Knowledge-based Systems, Columbus, OH. 1986.
- P. M. Johnson, *Requirements Definition for a PLUMber's Apprentice*. In Proceedings of the Second Annual Workshop on Theoretical Issues in Conceptual Information Processing, New Haven, CT. 1985.

### **Awarded Grant Support**

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- Student Engagement Grant*, P. M. Johnson, Principal Investigator. University of Hawaii and Maui High Performance Computing Center. \$42,000. 2004, 2005.
- Eclipse Innovation Grant Award*, P. M. Johnson, Principal Investigator. IBM Corporation. \$15,000. 2004.
- Supporting development of highly dependable software through continuous, automated, in-process, and individualized software measurement validation*. P. M. Johnson, Principal Investigator. Joint NSF/NASA Highly Dependable Computing Program. \$638,000. 2002-2006.

*Aligning the financial services, fulfillment distribution infrastructure, and small business sectors in Hawaii through B2B technology innovation.* P. M. Johnson, Principal Investigator. University of Hawaii New Economy Research Grant Program. \$30,000. 2000-2001.

*Internet Entrepreneurship: Theory and Practice.* P. M. Johnson and Glen Taylor, Principal Investigators. University of Hawaii Entrepreneurship Course Development Grant. \$10,000. 1999-2000.

*Java-based software engineering technology for high quality development in "Internet Time" organizations.* P. M. Johnson, Principal Investigator. Sun Microsystems Academic Equipment Grant Program. \$39,205. 1999.

*Project LEAP: Lightweight, Empirical, Anti-measurement dysfunction, and Portable Software Developer Improvement.* P. M. Johnson, Principal Investigator. National Science Foundation. \$265,000. 1998-2001.

*Internet-enabled Engineering Tool for Dynamically Analyzing and Planning World-Wide Subsea Cable and Array Installations.* P. M. Johnson, Principal Investigator. Makai Ocean Engineering, Inc. \$83,286. 1998-1999.

*Kona: A distributed, collaborative technical review environment.* P. M. Johnson, Principal Investigator. Digital Equipment Corporation External Research Program. \$101,413. 1997.

*Collaborative Software Development Laboratory Industrial Affiliates Program: Makai Ocean Engineering, Inc.,* P. M. Johnson, Principal Investigator. \$10,000. 1997.

*Collaborative Software Development Laboratory Industrial Affiliates Program: Tektronix, Inc.,* P. M. Johnson, Principal Investigator. \$45,000. 1996-1998.

*Improving Software Quality through Instrumented Formal Technical Review,* P. M. Johnson, Principal Investigator. National Science Foundation. \$161,754. 1995-1997.

*Collaboration Mechanisms for Project HI-TIME: Hawaii Telecommunications Infrastructure Modernization and Expansion: A Model for Statewide Strategic Planning,* P. M. Johnson, Principal Investigator. Subcontract with the Pacific International Center for High Technology Research. \$30,280. 1995

*Three Dimensional Interfaces for Evolving Collaborative Systems.* P. Johnson, Principal Investigator. University of Hawaii Research Council Seed Money Grant, \$5,000. 1992-1993.

*Support for Structural Evolution in Exploratory Software Development.* P. M. Johnson, Principal Investigator. National Science Foundation Research Initiation Award Program in Software Engineering. \$54,810. 1991-1993.

*An Investigation of Software Structure Evolution.* P. M. Johnson, Principal Investigator. University of Hawaii Research Council Seed Money Grant, \$6,000. 1990-1991.

## **Professional Activities**

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*Program Co-Chair, First International Workshop on In-Process Software Engineering Measurement and Analysis, Montreal, Canada, October, 2007.*

*Program Committee*, Third International Workshop on Software Engineering for High Performance Computing System Applications, Minneapolis, MN, May, 2007.

*Editorial Board*, Journal of Empirical Software Engineering, 2004-present.

*Program Committee Member*, PROFES 2005-present.

*Program Committee Member*, Workshop on Productivity and Performance in High-End Computing, 2005-2006.

*Program Chair*, Second International Workshop on Software Engineering for High Performance Computing System Applications, St. Louis, MO, May, 2005.

*Program Chair*, First International Workshop on Software Engineering for High Performance Computing System Applications, Edinburgh, Scotland, May, 2004.

*Program Committee Member*, XP/Agile Universe, Calgary, CA, August 2004.

*Program Committee Member*, International Software Metrics Symposium, 2003-2004.

*Program Committee Member*, International Symposium on Empirical Software Engineering, 2002-2004.

*Editorial Board*, IEEE Transactions on Software Engineering, 2000-2004.

*Program Chair*, International Software Engineering Research Network Annual Meeting, Honolulu, HI, 2000.

*Member*, State of Hawaii Millenium Workforce Development Initiative, 1999.

*Program Committee Member*, European Conference on Computer Supported Cooperative Work, Copenhagen, Denmark, 1999.

*Judge*, Hawaii State Science Fair, Honolulu, Hawaii, 1998-present.

*Founder and Chair*, Hawaii Java Users Group, Honolulu, Hawaii, 1996-present.

*Member*, International Software Engineering Research Network (ISERN), 1996-present.

*Program Committee Member*, European Conference on Computer Supported Cooperative Work, Lancaster, England, 1997.

*Advisory Board Member*, The International Journal of Computer Supported Cooperative Work, 1997-2004.

*Editor*, the WWW Formal Technical Review Archive.  
<http://www.ics.hawaii.edu/~johnson/FTR/>.

*Editor*, the WWW Software Inspection and Review Organization (SIRO) Home Page.  
<http://www.ics.hawaii.edu/~siro/>.

*Program Organizer*, Software Architectures for Cooperative Systems Workshop, 1994 ACM Conference on Computer Supported Cooperative Work, Chapel Hill, North Carolina.

*Program Chair*, CSCW Tools and Technologies Workshop, 1993 European Conference on Computer Supported Cooperative Work, Milan, Italy.

*Program Organizer*, CSCW Tools and Technologies Workshop, 1992 ACM Conference on Computer Supported Cooperative Work, Toronto, Canada.

*Reviewer*, IEEE Transactions on Software Engineering, IEEE Software, ACM Transactions on Software Engineering and Methodology, Hawaii International Conference on System Sciences, Sixth International Conference on Computing and Information, IEEE Computer, the 1993 Conference on Organizational Computing Systems, the 1993 International Conference on Computer Applications in Industry and Engineering, the Journal of Collaborative Computing, Artificial Intelligence in Engineering, Design, and Manufacturing (AI-EDAM), ACM Transactions on Programming Languages and Systems, The AI Handbook, Volume 4 (Chapter on AI and Software Engineering), the 1991 Conference on Software Maintenance.

### **Awards and Honors**

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Guitarist, Mabanzi Marimba Band, Hawaii Music Award Winner, World Music Category, 2006.

Coach of the Year, American Youth Soccer Association, Region 100, 2001.

Honorary member, Golden Key International Honour Society, 2001.

University of Hawaii Presidential Citation for Meritorious Teaching, 1994.

Computer and Information Science Department Fellowship, 1989-1990.

University of Massachusetts Graduate School Fellowship, 1985-1986.